

STUDENTS' PERCEPTION AND ATTITUDE TOWARDS SCIENTIFIC WORK DURING UNIVERSITY STUDIES

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Abstract. *Strengthening the scientific component within the structure of the educational process in modern higher educational institutions in Ukraine has determined the task of clarifying students' perception of the essence of conducting scientific work. The topicality of the research is determined by the fact that in the conditions of the current structure of university life, based on the principle of student-centeredness, students are autonomous subjects of study who participate in the educational process evaluation and improvement within the framework of the relevant curricula. The goal was to determine the perception and clarify the attitude of students towards the scientific work that is carried out in the university environment (based on the Ukrainian example) and to which they were involved during their studies. The following methods were used for its realization: theoretical (analysis, concretization, synthesis and systematization – while the scientific problem justification; generalization – for formulating the obtained results); empirical (written survey – questionnaire “Assessment of my scientific work during university study”); mathematical (calculation of the results). The article outlines three levels of students' scientific work that takes place in the modern educational environment of the university: mastering the educational component “Fundamentals of Scientific Research”; involvement in various types of scientific work conducted in the system of higher educational institutions; carrying out research within the framework of the scientific subject-matter, scientific projects. The perception of students regarding the content and accomplishment of scientific work during their study at the university is presented, as well as recommendations for its improvement based on the results of the developed author's questionnaire, which included 15 questions. Conclusions reveal the students' awareness of the necessity for the scientific work tasks and their attitude towards their own participation as full-fledged subjects in the carrying out scientific research. The prospects of the raised problem will be the development of a strategy for improving student scientific work at the university through the prism of its evaluation by students.*

Keywords: *curriculum, educational process in a higher educational institution, scientific research, scientific work, students' evaluation of their own scientific work, university students.*

Introduction

The current changes taking place in the higher education system of Ukraine primarily concern the strengthening of the scientific component within the structure of educational processes in modern universities. This is related to a series of reformative innovations driven by the implementation of European Strategy for Universities (European Commission, 2022). Efforts should be directed towards achieving the following key objectives: “ensuring the enhancement of transnational cooperation between universities” in the sector of carrying out scientific research, involving business, observing academic values, and introducing innovations. Scientific activity as a creative-intellectual experimental search, aimed at the implementation and verification of new ideas in order to obtain new knowledge and facts and implement them in practice in order to improve the efficiency of indicators, is defined as a priority.

In the current university environment, based on adherence to the principle of student-centeredness, education seekers emerge as autonomous agents in developing the educational process. They are involved in the evaluation and introduction of the changes aimed at improving the educational curricula they are enrolled in, which include, as a compulsory component, the basics of conducting scientific research. In view of the above, the task of clarifying students' perception towards the essence of carrying out scientific work and their attitude to such activity during their studies at the university have arisen. Therefore, the relevance of the research is determined by the need to implement European integration processes in Ukrainian universities and, in particular, in the aspect of conducting student scientific work.

It is worth noting that the raised issue is topical for the global educational arena, since the outcomes of students' scientific activities during their education in higher educational institutions have a significant impact not only on their own future careers (Belgrave & Jules, 2015; Rätty et al., 2018), but also on the development of respective fields of study, thus affecting society in general (Ferrero, 2020; Castro-Rodríguez, 2022; Van Eeden, Eloff, & Dippenaar, 2021). Ensuring diverse scientific work of students in a modern university is a guarantee of their personal growth and professional training.

The purpose of the study – determination of perception and clarification of students' attitude to scientific work, which is carried out in the university environment (based on the example of the Ukrainian ones) and in which they were involved during their studies.

Research objectives: (1) to conduct a theoretical study on the organization of students' scientific work based on the analysis of the resources; (2) outline the main aspects of the students' scientific work organization in the educational environment of a modern university; (3) to empirically determine students' positions regarding their scientific work during university study based on thematic surveys and analysis of their results.

The following **methods** were applied to achieve the set goal and tasks: theoretical (analysis, concretization, synthesis and systematization – in the course of justifying the raised scientific problem and determining its main aspects; generalization – for formulating the obtained conclusions); empirical (written survey – questionnaire “Assessment of my scientific work during university study”); mathematical (for calculating results).

Literature review

The issue of increasing the share of the research component in the system of training specialists in higher educational institutions is the subject of study for many scholars from various countries (Belgrave & Jules, 2015; Lokhvytska, 2023; Munna & Kalam, 2021; Shcherban & Gut, 2023). The dominant feature of professional readiness is the ability to offer innovative suggestions, generate ideas, and test them based on organizing and carrying out scientific research (Ferrero, 2020; Rätty et al., 2018; Shtonda, Biletska, & Proskurnia, 2022). It is the research component in professional training that will contribute to ensuring a high level of competitiveness for professionals able to introduce scientific results to practical activities (Castro-Rodríguez, 2022; Schoor, 2023; Van Eeden et al., 2021).

The implementation of the student-centered principle in the educational process of a modern university is directly related to the organization of students' research activities and the discussion of its results, followed by their practical implementation (Belgrave & Jules, 2015; Shtonda et al., 2022). According to C. Schoor (2023), the development of students' desire for scientific work makes a kind of bridge between the “utility of science” and “personal experience”. The success of strengthening this tandem is directly dependent on students' mastering the content of educational components on the methodology of science, which develops students' “confidence in science” (Schoor, 2023). Thus, it is necessary to ensure the conceptualization of knowledge among students about the essence of scientific work and to stimulate the development of their research competence “as a complex individual's development” and an indicator of professional preparation for “conditions of multi-role research activity (design and tasks implementation), <...> ascertainment <...> of connections and ability for further self-education” (Shcherban & Gut, 2023: 88). As noted by S. Mykhyda et al. (2020), within the university education system, there are

various opportunities for students to gain experience in organizing and conducting research work, the most common of which include participation in scientific activities and societies.

However, it is not uncommon for students to encounter difficulties during research activities, as they may lack certain skills in “introducing thoughts intelligently, legitimately, plainly, and carefully is the complex part of writing the research paper” (Micabalo et al., 2020). Therefore, in the process of teaching educational components, it is important to prepare students for conducting research and writing scientific papers. As emphasized by K. Belgrave & J. Jules (2015), the more attention is given to students' practice in carrying out scientific work, the more successfully their research skills will develop, and the greater their awareness of the value and utility of science in its broader sense will be formed as well. First and foremost, students are supposed to know how to present the results of scientific research, preparing the text of an article, which is an efficient way of presenting scientific information (Protas, 2021). The organization of students' scientific activity is facilitated by their motivation to apply willpower during research, critical thinking, the desire to improve knowledge, the formation of practical skills, and the enhancement of professional readiness (Lokhvytska, 2023).

Students' awareness of the functionality of research and its essential application to real-life situations “leads to a positive attitude towards their own scientific work” (Belgrave & Jules, 2015). The orientation towards scientific inquiry activates students to independently acquire necessary information, apply acquired knowledge, and creatively accomplish assigned research tasks. The combination of academic and research work with practical activities creates a foundation for the development of an active research position in education seekers. This contributes to the development of their own scientific potential and the accumulation of skills to critically analyze the sources, apply methods of scientific search, make conclusions, prepare and defend scientific projects (papers) (Castro-Rodríguez, 2022; Ferrero, 2020; Van Eeden et al., 2021).

Thus, theoretical study of the organization of students' scientific work gives reasons to conclude that in university education, significant attention should be paid to the practical implementation of the research component to enhance graduates' professional readiness. The next task is to outline the main aspects of organizing student research work in higher educational institutions.

Organization of Students' Scientific Work within the Educational Environment of Modern University

(based on Hryhorii Skovoroda University in Pereiaslav and The Bohdan Khmelnytsky National University of Cherkasy, Ukraine)

In general, the students' scientific work can be classified according to the following three levels, based on the content and specifics of its implementation: 1) students' scientific work, which is provided by the curricula and program of study and is compulsory; 2) students' scientific work that supplements the educational process (carried out supplementary to the educational and professional program); 3) extracurricular scientific work of students, carried out together with other subjects of the educational process. *We present a description based on the organization of the educational process for the first-level (bachelor's degree) students of specialties 012 Preschool Education and 231 Social Work.*

Regarding to *the first level of student scientific work*, according to the bachelor's curriculum, the "Regulatory Part" block includes the teaching of the educational component "Fundamentals of Scientific Research" during the second term. In the fourth semester, students are expected to prepare and defend a course paper on child psychology, and in the sixth term, they are required to prepare and defend a course paper on preschool education or methodology. Each of the mentioned educational components includes 3 ECTS credits, which is equal to 90 academic hours.

In particular, the educational component "Fundamentals Scientific Research" provides 16 hours of lectures and 14 hours of practical classes and 60 hours of independent work – for full-time mode of study, and 6 hours of lectures, 4 hours of practical classes and 80 hours of independent work – for part-time mode of study. The vision of studying independent students' work involves mastering the methodological principles of carrying out scientific research, acquiring knowledge about psychological-pedagogical research methods, and gaining practical skills in organizing research and experimental work within the context of the real process (for the specialty 012 Preschool Education – in preschool educational institutions, for the specialty 231 Social Work – in social sphere institutions). The purpose of teaching this educational component is training of highly qualified specialists in the field of preschool education, who are capable of carrying out independent scientific research on multifaceted problems related to the education, development and upbringing of preschool children. The range of scientific issues has a direct dependence on the tasks set in the field of psychology and pedagogy of preschool education, which are determined by the social demands of society and the requirements of today's practice. Regarding the main tasks of the educational component, the following are defined: • giving students basic knowledge and skills on the basics of

conducting scientific research; • providing students' awareness of scientific principles and scientific approaches, about the specifics of stating a scientific problem, its evaluation and solution; • improvement of general educational skills – development and study of scientific psychological, pedagogical and methodical primary sources: to carry out a scientific review and critical analysis of literature, to make its generalization and systematization; • gaining by students the abilities and skills in using research methods (diagnostic and formative); • formation of skills to creatively use the results of scientific research in the teaching process, development and teaching preschool children (during the preparation of course work and scientific projects).

Two types of course projects are compulsory constituents of the curriculum. The course work is an educational task of students and at the same time the first attempt to organize and carry out scientific work by them, which is carried out independently on the basis of the knowledge and skills acquired in the course of education from specialized educational components. The purpose of a course work is to deepen students' knowledge of current problems of the relevant educational components; in the further development of their ability to independently and critically analyze scientific sources; in the development of students' research abilities and skills; in stimulating students to further active search.

The second level of scientific work lies in the fact that students are involved in various types of scientific work, which is organized and conducted both at the university where they receive their education, and in others, including scientific institutions, organizations, etc. The main forms of such students' scientific work include participation in student scientific workshops, creative problem groups, scientific work of students on the basis of experimental preschool education institutions, participation in students' Olympiads, various types of scientific activities (webinars, symposia, conferences, etc.), competitions of student scientific works of different levels (university, regional, all-Ukrainian and international).

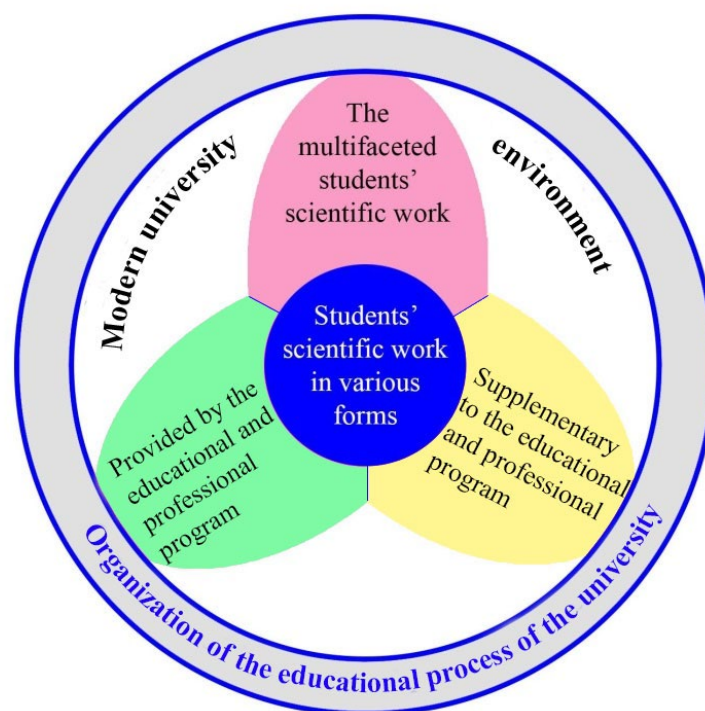
Regarding *the third level of students' scientific work*, their participation in psychological-pedagogical research conducted by graduate departments of the university in accordance with the approved topic is foreseen; in international scientific programs (competitions, grants); in scientific work on the basis of foreign partner universities, carried out in scientific collaboration in accordance with the collaboration agreements.

The bodies that coordinate the organization of the scientific work of students of the second and third levels are the departments of scientific and project activities (sector of scientific work of students) and international activities (sector of international mobility of students), as well as the scientific society of university students. All students have the opportunity to conduct research on their own initiative and with the help and under the guidance of

experienced scientists, to submit completed works to relevant scientific competitions, Olympiads and exhibitions, to publish in collections of student scientific articles and to implement the obtained results of psychological and pedagogical gaining in the educational process.

Carrying out scientific work tasks by students in conditions of the current university environment has its own specifics, as it is based on the use of information and communication technologies and relevant Internet resources. These include electronic digital libraries, Internet reference and search systems, WEB-sites of various scientific areas (in particular, psychological and pedagogical areas), etc. In turn, this contributes to both the implementation of the tasks of the relevant educational components of the bachelor's educational and professional program regarding the formation of students' knowledge about scientific research and the initial skills of conducting it, as well as the students' involvement in scientific research activities at various stages of university studies.

Conventionally, the organization of students' scientific work in the environment of a modern university can be visually presented in the form of a scheme (see Figure 1).



Legend:

- first level (compulsory);
- second level (supplementary);
- third level (extracurricular)

Figure 1 Conventional and visual scheme of students' scientific work during university study (made by authors)

That is, students' scientific work in the modern university environment can take place in various ways: from the implementation of the tasks of the relevant educational components of the educational and professional undergraduate program to involving them in scientific and research activities at various stages of education. The characterized levels of students' scientific work taking place in the modern university educational environment will be taken as a basis when developing a questionnaire for the empirical stage of the research.

Methodology of research

Research tools. Using the survey method, students were surveyed by filling out a developed author's questionnaire "Assessment of my scientific work during university study", which was hosted on the Google Forms service (see <https://forms.gle/EkTassqkTQ6TGXSM7>). The questionnaire is based on the scientific statements of D. Abun et al. (2023), K. Belgrave & J. Jules (2015), B. Chang (2019), P. Kakupa & H. Xue (2019), M. Saini et al. (2020) regarding self-analysis conducted by respondents aimed at determining the depth of knowledge about the basics of scientific research and identifying "weaknesses" in the implementation of scientific work tasks; clarifying their personalization as participants in scientific activities of various formats and levels, as well as to collect about providing assistance to students in establishing connections for the implementation of scientific activities and with the aim of improving its organization in general.

In total, the thematic questionnaire included 15 questions, of which: 6 questions had multiple-choice responds and 9 questions with an open respond (respondent's own opinion). The list of questions is conventionally grouped into three blocks, reflecting the three levels of students' scientific work characterized above: mastering the educational component "Fundamentals of scientific research" (questions 1.1–1.5); involvement in various types of scientific work carried out in the system of higher educational institutions (questions 2.1–2.5); conducting research within the framework of the implementation of scientific subject-matter, scientific projects (questions 3.1–3.3), as well as general students' assessment of scientific work at the university (question 4) and recommendations for its improvement (question 5).

Data collection procedure and methods of analysis. The research took place during the 2022-2023 academic years in the following stages: in the first (September-November 2022) – the questionnaire was drawn up and its technical preparation took place; on the second (December 2022 – February 2023) – collection of actual data was carried out on the basis of questionnaires filled out by respondents; on the third (March – June 2023) – the obtained results were processed through both quantitative and qualitative analysis, interpretation,

conclusion formulation, and identification of improvements for students' scientific work during their university studies.

Study sample are described. The survey was conducted among students of the 4th year of study (first (bachelor) level of higher education) at Hryhorii Skovoroda University in Pereiaslav and Bohdan Khmelnytsky National University of Cherkasy (Ukraine) of the educational and professional program (hereinafter EPP) of the specialty 012 Preschool Education and EPP of the specialty 231 Social Work. The choice of such a research group is due to the fact that the students in the 1st year have already mastered theoretical training in the relevant educational component "Fundamentals of Scientific Research", in the 2nd and 3rd years of study they prepared the term projects, and also participated in various scientific activities. Previously, the participants of the survey did not receive any explanations about the purpose of the study, which made it possible to avoid any external influence on the results of the survey. The total number of respondents who took part in filling out the questionnaire is 146 participants.

Results of research

We present the results obtained on the basis of the collection and processing of questionnaire data. In the process of quantitative and qualitative analysis of participants' responds, not a single invalid questionnaire was found, therefore, all the received questionnaire data were considered. We present the results of the quantitative analysis and qualitative interpretation of data regarding students' perception and attitude towards scientific work during their studies at the university according to the outlined levels of its organization.

The first level – is scientific work prescribed by the educational and professional program.

The received results to the closed questions (1.1., 1.4. and 1.5.) are given in table 1.

Table 1 Quantitative analysis of the respondents' survey "Assessment of my scientific work during university study" (first level of scientific work) (made by authors)

№	Content of the question (according to the questionnaire)	Index			
		Yes		No	
		n	%	n	%
1.1.	Has the educational component "Fundamentals of scientific research" contribute to your awareness of conducting scientific work?	127	86.9	19	13.1
1.4.	Was it challenging to prepare the term paper?	38	26.1	108	73.9
1.5.	Did working on the term paper contribute to the emergence of a desire for scientific activity?	113	77.4	33	22.6

n=146

Based on the analyzed responses to question 1.1. “Has the educational component “Fundamentals of scientific research” contribute to your awareness of conducting scientific work?”, it was found out that the vast majority of respondents (86.9%) succeeded in mastering its content for further conduct of scientific work. However, 13.1% of the respondents indicated that their expectations from studying this educational component were not met; they felt lack of the knowledge acquired to accomplish the tasks of scientific research.

In response to question 1.2. “What was challenging in mastering the educational component “Fundamentals of Scientific Research”?”, students gave responds that were classified in a generalized manner based on the essence of their expression (See Figure 2).

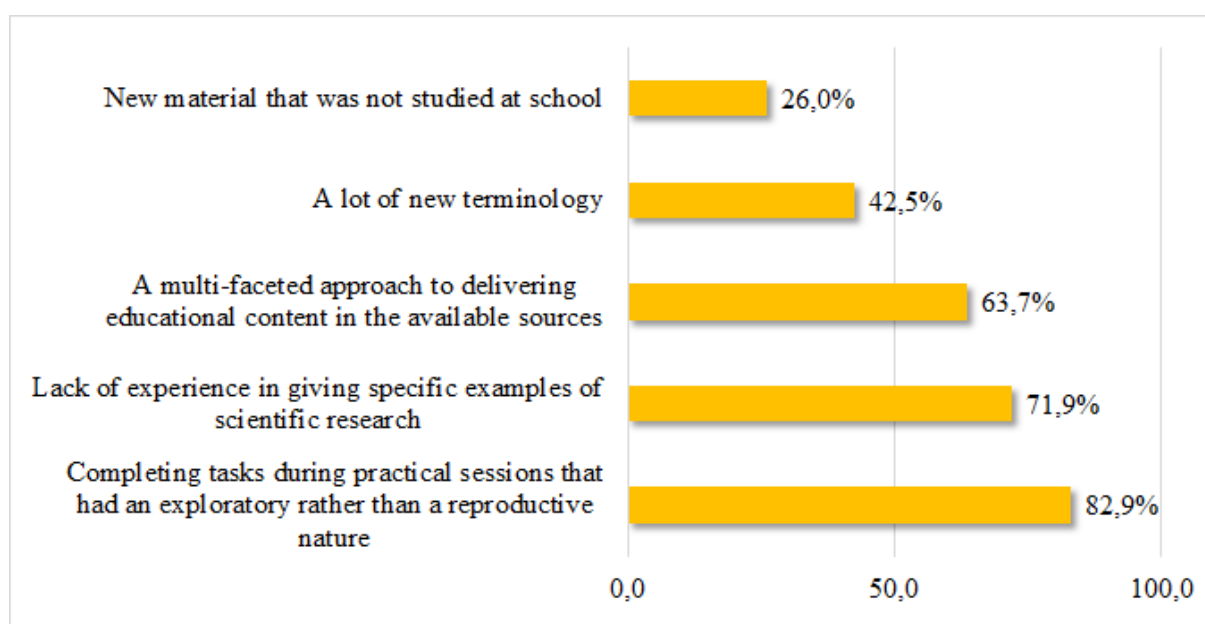


Figure 2 The challenges expressed by students in mastering the educational component “Fundamentals of Scientific Research” (made by authors)

During the survey, it was determined which factors, hindering the mastery of the educational component “Fundamentals of Scientific Research”, were indicated by the students. Among them, almost a third (26.0%) indicated that it was “new material that has not been studied at school”; 42.5% noted “a lot of new terminology”; more than half of the respondents (63.7%) referred to it as “a multi-faceted approach to delivering educational content in the available sources” because the list of recommended sources consisted of many ones; for the majority (71.9%), it was challenging to “provide specific examples of scientific research due to lack of experience”, as at the time of studying the educational component (2nd term of studies), knowledge was still lacking, and it was significantly difficult to “complete tasks during practical sessions that had an exploratory rather than a reproductive nature”, as indicated by 82.9% of the

total number of respondents. The outlined findings give reasons to look for the ways to improve the efficiency of mastering the educational component “Fundamentals of Scientific Research”.

Responses to question 1.3. “What motivated you to study the educational component “Fundamentals of Scientific Research?” were categorized based on the similarity of students’ responses and presented in a summarized form (See Figure 3)

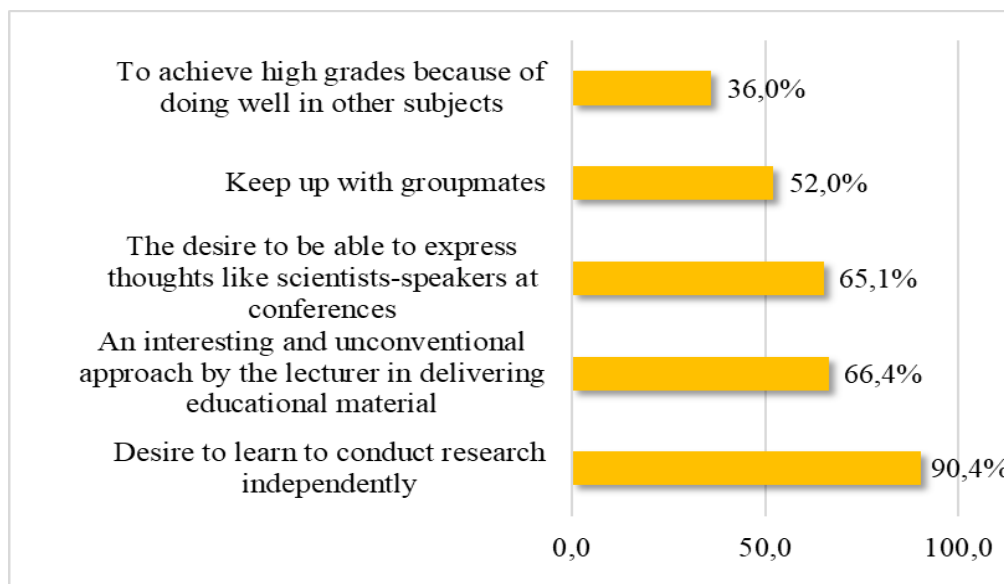


Figure 3 *Students’ motivation in studying the educational component “Fundamentals of Scientific Research” (made by authors)*

Regarding to the main motivations for studying the educational component “Fundamentals of Scientific Research”, students determined the following: “to achieve high grades because of doing well in other subjects” (36.0%), indicating the subjective nature of motivation; half of the respondents (52.0%) defined it as “keep up with groupmates”, which is also relative as previously characterized; however, the responses indicating “the desire to be able to express thoughts like scientists-speakers at conferences” (65.1%), “an interesting and unconventional approach by the lecturer in delivering educational material” (66.4%), and “desire to learn to conduct research independently” (90.4%) were positive from the perspective of an objectivity of the set goal.

To question 1.4. “Was it challenging to prepare the term paper?” (see table 1) 26.1% gave an affirmative response, and in 73.9% of the respondents noted that, it did not cause any difficulties, which proves the appropriate readiness of students to outline the theoretical issues of the researched issue and the ability to organize and conduct a scientific experiment while writing term papers.

The results obtained for question 1.5 are positive. “Did working on the term paper contribute to the emergence of a desire for scientific activity?” (see

table 1), where 77.4% of respondents noted that they developed a desire to further engagement in scientific work, however, 22.6% of respondents demonstrated a negative reaction, which is a troubling signal regarding their reluctance to seek the truth, which science is.

The responses obtained give reasons to consider the necessity to review the curriculum regarding the feasibility of teaching the educational component “Fundamentals of Scientific Research” during the 2nd term. It may reasonable to postpone it (for the 3rd or 4th terms), when students already have acquired some basic knowledge about the specialty, which will allow to complete the paper tasks more accurate. Students also need to demonstrate more the results of approbation and implementation of scientific research in the practical plane, which will stimulate them to independent scientific research and motivate them to achieve their goals.

The second level – is scientific work, which is supplementary to the educational and professional program.

In this block, closed questions were 2.1. and 2.3. Responds to them are presented in table 2.

Table 2 Quantitative analysis of respondents' survey “Assessment of my scientific work during university study” (second level of scientific work) (made by authors)

№	Survey question	Index			
		Yes		No	
		n	%	n	%
2.1.	Have you ever participated in students' scientific activities (webinars, conferences, workshops, etc.)	139	95.2	7	4.8
2.3.	Were you a member of a scientific group (research group)?	58	39.7	88	60.3

n=146

To question 2.1. “Have you ever participated in students' scientific activities (webinars, conferences, workshops, etc.)?”, 95.2% of respondents gave an affirmative response, only 4.8% of them gave a negative response, which is an encouraging fact and indicates the students' interest to participate in various scientific activities.

Students' responses to question 2.2. “What stimulated participation in student scientific activities?” are grouped according to the similarity of responses according to the following variables: educational, practical, personal and external (See Figure 4).

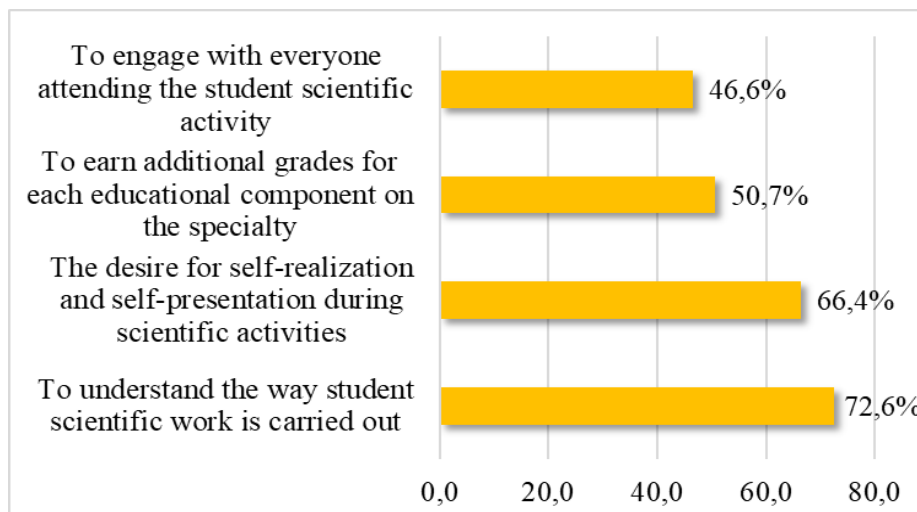


Figure 4 *Incentives determined by students to participate in student scientific activities (made by authors)*

According to the results of the survey, 46.6% of respondents indicated the external stimulus – “to engage with everyone attending the student scientific activity”; regarding educational, which was expressed as “hope to earn additional grades for each educational component on the specialty” there was almost the same number of responses – 50.7%. The personal advantage, in particular, “the desire for self-realization and self-presentation during scientific activities” was recorded in 66.4% and the practical one, which is seen as “trying to understand the way student scientific work is carried out”, took place in 72.6%. The obtained data indicate a conscious awareness of student participation in scientific activities.

To question 2.3. “Were you a member of a scientific group (research group)?” (see table 2) 39.7% of students gave a positive response, while 60.3% of them did not attend such associations. Such a phenomenon causes concern, because it is precisely such groups that allow students to gain experience in team student scientific work.

Received responses to question 2.4. “What motivated you to become a member of a scientific group (research group)?” are summarized by similarity according to the following parameters: educational, activity-related, personal (See Figure 5).

Regarding the identification of the main incentives for students to become members of a scientific club (research group), the obtained results were corresponding to the previous question and distributed in ascending order according to the following parameters: activity-related – “working in a team of like-minded people” (noted by 41.8% of respondents); educational – “desire to carry out research at a high level” (recorded in surveys of 54.1% of respondents); and personal – “to be an expert and constantly develop” (found

out in 58.9% of the responses). However, as the results demonstrate, due to the small number of student-members scientific clubs (research groups), the motivation to participate was also not diverse and high.

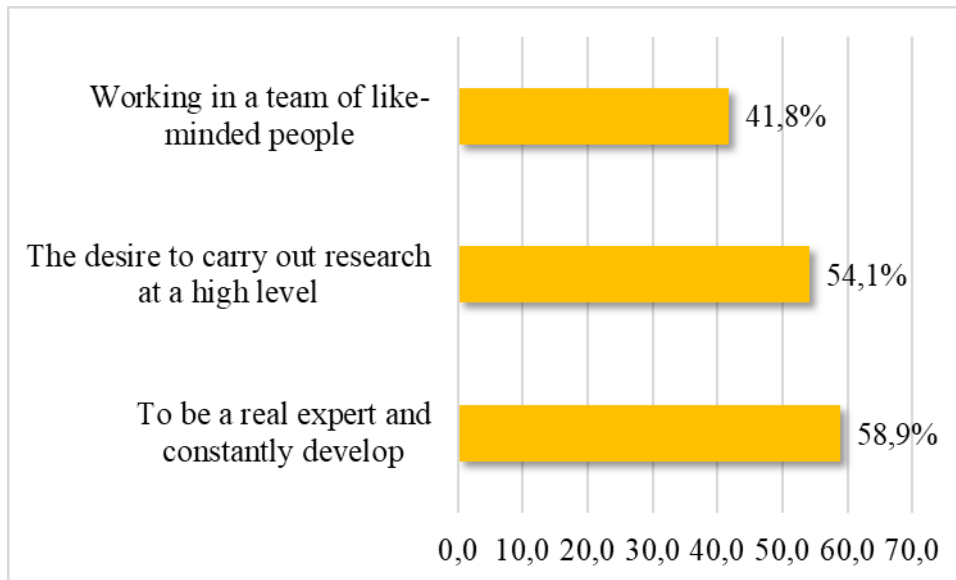


Figure 5 *Main incentives for students to become members of a scientific club (research group) (made by authors)*

Responding to the question 2.5. “What types of scientific work they participated in at the university?”, students mostly gave very similar responses (See Figure 6).

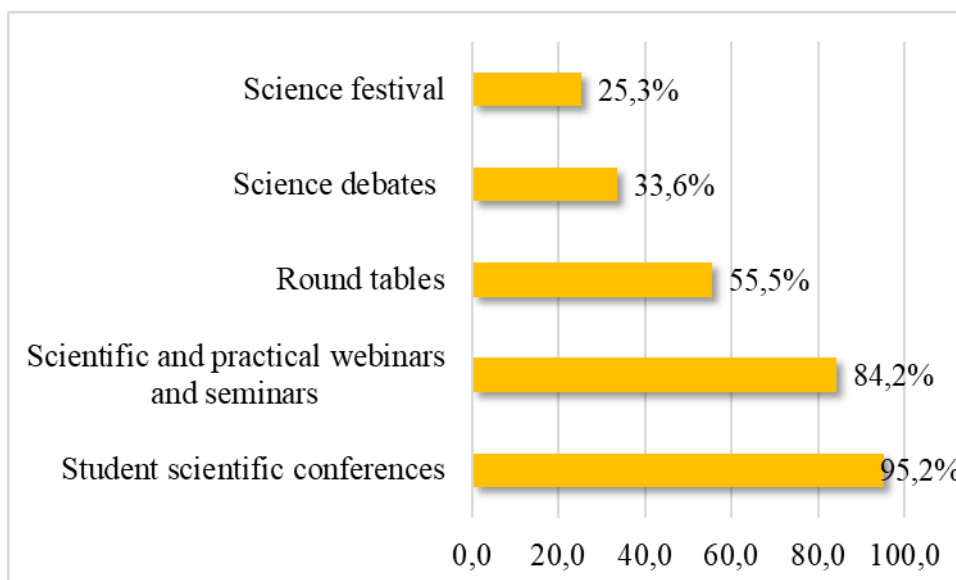


Figure 6 *Types of scientific events students have participated in during university study (made by authors)*

According to the results obtained for question 2.5., the most popular types of students' science work, in which they participated in during their university study, were: science festivals, although a small number of respondents pointed to them (25.3%); science debates, which was mentioned by more than a third of the respondents (33.6%); round tables, which were marked by more than half of the respondents (55.5%); but scientific and practical webinars and seminars (84.2%) and student scientific conferences (95.2%) took priority positions in the survey.

Thus, according to the results characterizing the students' scientific work, which is supplementary to the educational-professional program, a positive characteristic is observed. In particular, respondents noted a high level of participation in scientific activities, which is justified by personal and practice-oriented incentives. However, it was noted that mechanisms for involving students in membership in scientific clubs (research groups) need strengthening.

The third level – is scientific work, which is increasingly multifaceted.

According to the list of questions of this block, only question 3.1 was closed. Recorded responses are presented in Table 3.

Table 3 Quantitative analysis of respondents' survey on "Assessment of my scientific work during university study" (third level of academic work) (made by authors)

№	Survey question	Index			
		Yes		No	
		n	%	n	%
3.1.	Have you participated in thematic research, international scientific projects (programs, competitions, etc.)?	11	7.5	135	92.5

n=146

Received responses to questions 3.1. "Have you participated in thematic research, international scientific projects (programs, competitions, etc.)?" demonstrated extremely low indicators of student involvement – this is only 7.5%, while 92.5% of the respondents testified that they have not been involved. This fact should be a signal to strengthen such work.

Received responses to question 3.2. "What types of enhanced scientific activities students have participated in during university study?" were not large in number (See Figure 7).

Among the types of enhanced scientific activity in which students took part (question 3.2.), the respondents gave the following responses: "preparation of the presentation abstract on the researched issue together with the academic supervisor of the graduating department" – 4.8%, "research within the limits of academic mobility" – 6.2%, and "participation in conducting surveys for thematic research" – 7.5%. The indicators are quite low. Due to the lack of

involvement in this level of scientific work, the students of education cannot point to a range of its varieties.

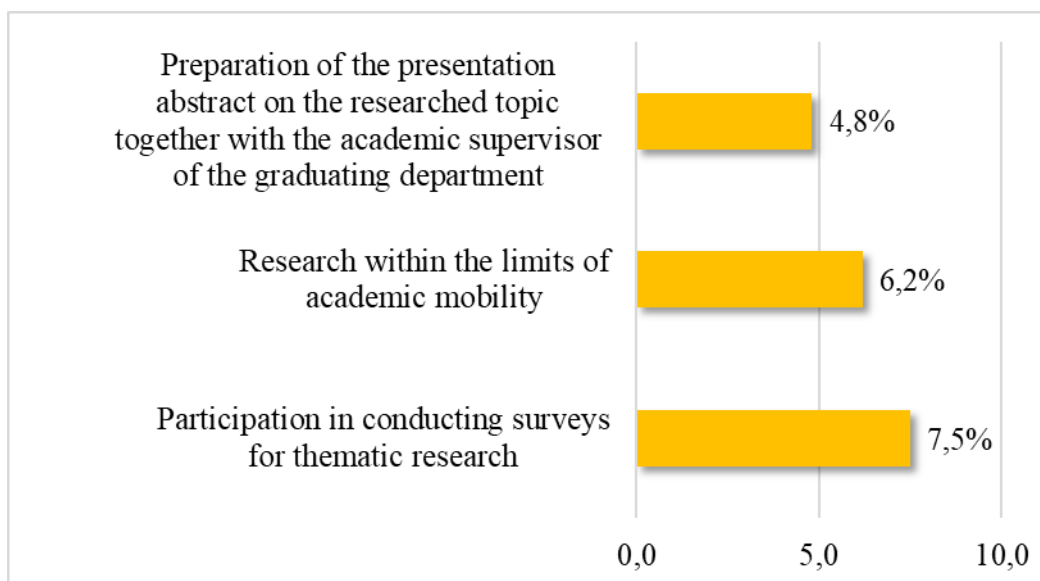


Figure 7 Types of enhanced scientific activities students have participated in during university study (made by authors)

Responses to questions 3.3. “What experience (if any) of scientific work did you gain at the university?”, were not too diverse, the students spoke about it in a somewhat stereotyped way (See Figure 8).

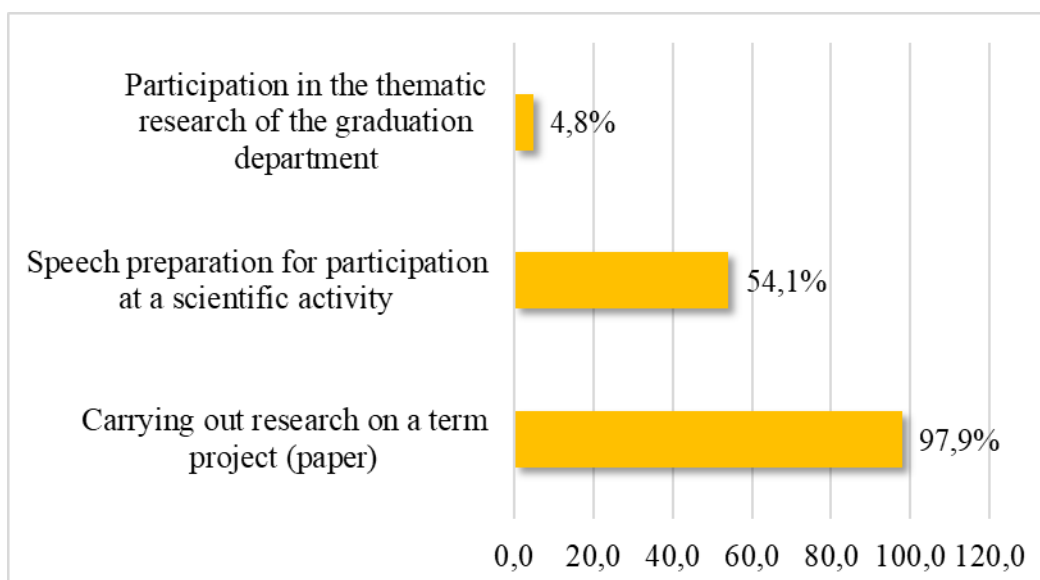


Figure 8 Experience of scientific work students gained during university study (made by authors)

According to processed quantitative data, responses to question 3.3. were distributed as follows: only 4.8% of the respondents indicated participation in the thematic research of the graduation department. However, a positive fact was confirmed by more than half of the respondents (54.1%) regarding their speech preparation for participation at a scientific activity, and almost all the students (97.9%) noted that they conducted research for a course project (term paper). Although the latter is an obligatory task in obtaining a bachelor’s degree.

Thus, the responses received from the questionnaires regarding the third level of scientific student work, defined as highly multifaceted, testified to the necessity for its significant strengthening, since an extremely small number of undergraduate students participate in thematic research, international scientific projects (programs, competitions, etc.). Their active involvement will contribute to the variety of types of scientific work in which students will be able to actively participate.

Giving respond to the 4th question of the questionnaire “How would you rate the student’s scientific work during your university study (in points from 1 to 5)?”, the respondents demonstrated different positions recorded in the Figure 9.

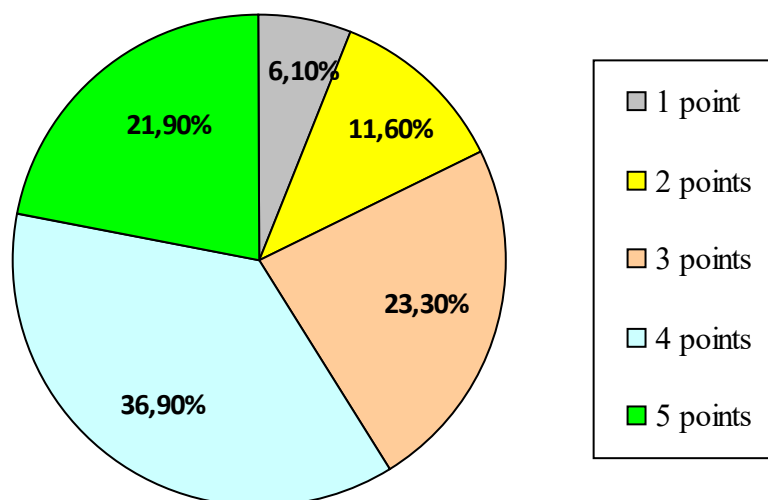


Figure 9 Rating (in points) of the student’s scientific work during university study (made by authors)

Assessing scientific work during university study (question 4), students were different in their opinions. Recorded responses of both a negative vision (1 point was given by 6.1% of respondents and 2 points – 11.6%, which is a total of 17.7%), which is almost a fifth of all respondents, and an average rating (3 points were rated by 23.3%), which is almost the same part, and positive (4 points are given by 36.9% and 5 points by 21.9% of respondents’ questionnaires, which is a total of 58.8%) in more than half of the survey

participants. In general, the obtained results provide a basis for developing a strategy for improving scientific student work at universities.

Regarding the 5th question “Your recommendations for improving the scientific work of students at the university”, the respondents’ answers were summarized in accordance with the specified content and ranked as follows (See Figure 10).

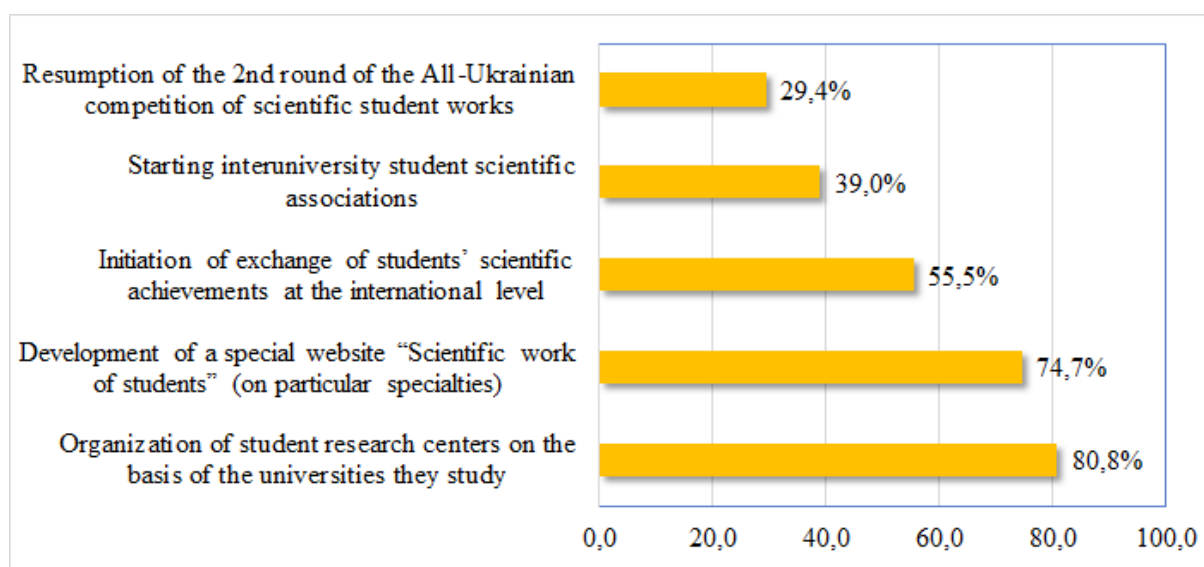


Figure 10 *Recommendations suggested by students (made by authors)*

The following generalizations can be made regarding to the recommendations given by students, aimed at improving the scientific work of the university during their studies:

- Students (29.4%) spoke in favor of “resuming the 2nd round of the All-Ukrainian competition of scientific student works”, because in connection with the introduction of martial law in Ukraine on February 24, 2022, due to the armed aggression of the Russian Federation, only the 1st round is held within universities, where students study. This issue will be solved when peaceful life is established in the Ukrainian state, so that every student, participating in such a competition in any city, wherever it may be held, feels safe and protected during the defense of their scientific work.
- 39.0% of respondents expressed support for the “starting interuniversity student scientific associations”, with their surveys indicating that such associations could exist both among home higher educational institutions and internationally. To implement this, an appropriate mechanism should be developed when concluding cooperation agreements with universities

- More than half of the students who took part in the survey want to “start the exchange of students’ scientific achievements at the international level” – 55.5%. The following arguments were given in their responses: “approbation materials for the results of scientific research should be made public to a wide audience, and not only in Ukraine”, “then we would know what arouses scientific interest among students from Europe, and what is interesting for us”.
- 74.7% of respondents spoke about “developing a special website “Scientific work of students” (on particular specialties)”. Thus, it was stated that its content should include operational information about new scientific achievements of students in the relevant field, announcements of scientific events, reports on those being held (these can be electronic collections of materials, video reports, etc.).
- The most popular recommendation was “organization of student research centers on the basis of the universities they study”. 80.8% of survey participants spoke in favor of it. In particular, it was noted that such centers should be specialty-based, since the scientific student society cannot cover the entire range of issues that require urgent solutions.

Thus, we can conclude that the recommendations suggested by the students to improve their scientific work are mainly aimed at expanding the range of thematic research communication, at the desire to be aware of the depth of the spectrum of the scientific problem that is studied not only within their country, but also in other countries (an effective way to integration of educational and scientific space), as well as further digitalization and application of information technologies in scientific activity. However, we emphasize that there is a restriction of the research results, as it was conducted among university students within one region – central Ukraine.

Conclusions and discussion

Research on determining the perception and attitude of students towards scientific work, which is conducted in the university environment and in which they participated during their study (based on two Ukrainian institutions of higher education), provided the basis for outlining such conclusions and those debatable issues that need to be resolved:

(1) Based on theoretical study of the student scientific work organization in the university education system, conducted using analysis, synthesis, and specification methods, it has been clarified that the research component should be the dominant feature of students’ professional training. This is ensured by engaging students in various types of scientific work during their studies at

higher educational institutions. For this purpose, various opportunities should be developed for organizing and conducting research by students.

(2) The generalized and systematized main aspects of organizing student scientific work in the educational environment of a modern university are conventionally grouped into three levels: the first level involves mastering the educational component "Fundamentals of Scientific Research"; the second level – involving students in various types of scientific work carried out within the higher education system; the third level involves conducting research as part of fulfilling scientific issues, scientific projects, etc. These outlined positions formed the basis for the development of an author's questionnaire to accomplish the stated third task.

(3) While carrying out the empirical part of the study, the positions of students regarding their scientific work during university study were determined on the basis of the thematic questionnaire "Assessment of my scientific work during university study" and quantitative calculations and qualitative interpretation of the results of the analysis were carried out. The perception of the students regarding the content and their attitude to the performance of scientific work while studying at the university is presented. It is noted that students' awareness to the content of the educational component "Fundamentals of scientific research" should meet their research needs and ensure the success of professional training after mastering it. The essential involvement of education seekers in scientific work, which is supplementary to the educational and professional program and increasingly multifaceted, is emphasized. The importance of considering the recommendations suggested by students for its improvement is emphasized. In this way, the students' perception of the need for the scientific work tasks and their attitude towards their own participation as competent experts in the carrying out of the scientific research were revealed.

However, the following statement as "research is a mission for trust with the assistance of study, acknowledgment, association, and preliminaries in the journey for information through the goal and proficient methodology to discover answers for an issue" (Micabalo et al. 2020: 59) remains debatable. It is questionable in what way students' beliefs should be developed. When postulating scientists (Abun et al., 2023; Belgrave & Jules, 2015; Kakupa & Xue, 2019; Saini et al., 2020; Schoor, 2023), it is important to consider the impact of students' attitudes, their intentions, and ultimately the success and productivity of the conducted research for its practical implementation.

Prospects for further scientific work. The prospects of the initiated issue will involve the development of a strategy to enhance student scientific work in the university through the prism of education seekers' assessment. Relying on the principle of student-centeredness in organizing the educational process, it is necessary to consider their perspective on improving scientific work, which will ensure the quality of education in general.

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